

## "THESIS ON HUMAN EVOLUTION"

### AUTHOR and AUTHOR'S INFORMATION:-

Sanjay Lakshminarayana (Sanjay L) is a budding scientist, amateur astronomer and cosmologist. Known for his lectures on physics "Feyn-lab lectures" he is always on his toes to contribute to the field of science.

Sanjay, Originally from bangalore, India has dedicated over 12 years to study of science with a standard approach to it. He was born on 28th of June 1994 and his main aim is to produce a theory which will revolutionize the present world.

He expertize in physics and modern-physics in particular. He is as a volunteer at a local planetarium and most of the time in a year, is indulged in scientific activities.

Quite recently he started doing a series of lectures on all topics of physics to inspire people take up science and also to help simplify the concepts of physics for beginners.



## HUMANS ?

Humans (Homo sapiens) are primates of family, and the only extant species of the genus homo. The bipedal locomotion distinguishes us from rest of primates.

In general, the ability to behave civilized and a mature brain capable of performing complex tasks  
(→ by default makes "humans a special beings")

Present "humans" are a evolved form of its closest relative chimpanzee, some million years ago evolved into australopithecines and eventually "genus Homo".

In this particular thesis, i would like to introduce the reader to "Humans civilized?" by explaining how i was able to write / realize the evolution of our species right from chimpanzees to the first fire to the first thoughts to the first questioning to the first communication to the first reading to the first land discoveries to the first problem solving to the first food. In general, a step by step evolution till "Homo sapiens".



The first life would have begun in total darkness at the bottom of the oceans. They would have survived on the minerals found in the sea bed.

It was 650 million years ago that the first life began. The evidence can be still found, ~~in~~ charnia — is a frond-like ediacaran life form with segmented ridges branching alternately to right and left from a zig-zag medial suture.

These microscopic single celled organisms or species existed in conditions where in day and night was 12 hours instead of 24 as it today, toxic atmosphere due to volcanic ash. However, in oceans the same volcanic vent created the conditions for life to flourish, Thanks to the volcanic minerals etc the first organisms developed ways to harness food from them, this marks one of the first evolutionary steps.

Later, structures as such as sponges appeared quite recently in terms of evolutionary years. The ability of its cells to group together and form multi celled structures.

But it was not that easy, Initially they had to survive the Ice age, cells (life form) was crushed beneath mammoth glaciers but life found a way, cells survived



The organisms are called as "extremophiles" and then there was the green house effect which melted away the ice. With this melting - glacier nutrient rich water flooding into oceans acting as a fertilizer helped the life - cherish as we know it.

As a human, i would need oxygen to breathe and the oxygen in the atmosphere was due to cyano-bacteria. Hence the foundation is laid for the birth of mammals.

Dinosaurs were here 65 million years ago, the rise of first animals hence the mammal which give birth directly to young ones, which means that for the first time certain group of species made an effort to get out of water and learned to harness the new energy - food the sun.

Now, fast forwarding to the first chimpanzee's, we humans are an evolved version of chips (chimpanzee). The anatomy is quite similar, the limbs and face of humans and chimps are similar but ours is a more symmetric one. The DNA samples confirms the above. Hence, we are the closest relatives than rest of apes and monkeys.



The member of Genus Homo evolved from a member of an earlier genus called Australopithecus, they include lower jaw, part of upper jaw and part of lower leg.

According to evidence, we arrived about 150,000 years ago. Believed to have evolved somewhere in Africa where most of the oldest 'homo' genus fossils are found.

### THE FIRST HUMANS.

The earliest members of human family called hominids. They lived in Africa, most likely around 6-7 million years ago. The chances are that they walked upright when on the ground but still spent much time on trees.

About 4 to 2 million years ago, Australopithecus had brain size of around 300 to 500 cubic cm or roughly the same as modern great ape. They are believed to have had plants, insects and small animals on their diet.

Another 2 million years ago the tools appear in the record they are not much to look at but they are sharp edged - flakes of rock. Yet the appearance marks major advance in human evolution.



They signal the beginnings of basic technological thought, as our ancient relatives needed insight to which stones made better tools and how best to knock off cutting flakes. Having tools to cut the meat from animal carcasses meant it was easy survival and major technological advancement.

Later till about 1.2 million years ago, with a slightly bigger brain than african hominids, was capable of making better stone tools the named of this species is "Homo habilis" / handy man.

HUMANS ON MOVE,

Almost 2 million years ago, hominids set out from africa and moves to Asia. One east asian species.

"Homo erectus" which had survived for long time well over 1.5 million years. this marked one of the first meet of different colonies of species.

The Homo erectus's fossils have found in southeast Asia. They are known for their remarkable ability to survive over 10 times the period that we, the modern humans have survived.



About 93000 years old, we the Homo sapiens arrived. By now we knew how to hunt, eat, design, innovate, migrate and evolve. We occupied most of Asia, Europe and Africa.

Now, we faced a huge-obstacle along the speedy journey of evolution which could threaten the very own existence of our species.

In some about 15000 years ago, winters were harsh.

But okay, we had developed a clever way to cope with cold. The residents of eastern Europe sewed clothes from animal hides and built sturdy (sturdy) shelters from mammoth-bones. When food was abundant we buried supplies in permafrost—an ancient form of deep freezing.

So our brain was enough developed to think about tomorrow.

By the time ice age rolled around, evolution had already come up with giant mammals that had survived the cold with fur/hairs covered—they were called "Mega fauna".

Despite not being huge and hairy we braved it. For the first time we were inventive, they realized the fur of animals can be worn as clothes to protect from cold.



After the ice age, we began thriving exponentially, But out of all huminids we are only survivors, Yet in short time that we existed. we populated the entire globe, found ways to communicate, creative expressions and sophisticated tools helped modern human have an edge over survival — than other species.

As of today, our closest species have died out or the closest — relatives have died out. Yet we survived to become the only living hominids.

Compared to the other hominids our skeleton, brain and ability to walk and do complex things put us apart.

SENSE OF WORLD,

Today we are so advance in our scientific development that we dream and perform calculations on how an object is for example 1- Rotating at the corner of solar system which is roughly 9 trillion miles.

The first voyagers went on a voyage around the globe once we thought that at the ends of earth (since earth — was thought to be flat) lies a drop off and even warned not to cross — the horizons.

Inspite of all this we made it through those journeys with our bravery.

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Charles Darwin the father of evolution went on a voyage and concluded that "Survival of fittest" after going around the globe, visiting islands teeming with life.

Our ability to visualize things / dream is also very significant being a physicist I can dream of a galaxy as I write. Drawings found on rocks carved indicates this great capability of our species from times around 25000 years ago, its a slow evolution to present day.

Today, 7.08 billion (roughly) people live on this earth with humans being on top of food chain as "social animals" as we talk and interact with each other. With an average life expectancy of 70 years and with 1.2% annual growth of population.

Hence, this planet is full of life and we humans are all but evolved more than any. We have learned to even protect those species from our own species and we are mature enough to study our own brain.



## CONCLUSIONS AND FUTURE OF HUMAN EVOLUTION:-

On to this day, i think we'd all agree we are slaves of technology we created. We have had great people in the past who changed our way in which we see the world. We have put "man on moon" and sent probes to the edges of the solar system. We even think about the existence of life elsewhere in the cosmos.

I'd say yes we are evolving but we are busy reshaping the environment that we live in due to our activities. Again, "Survival of fittest" stb depends on our evolutionary ability as a species to survive the changes that are undergoing in america, around the world.

But under present circumstances new human species are unlikely to emerge.

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